

WHAT IS CLAIMED IS:

1. A combustor for a gas turbine comprising:

a preburner section for receiving fuel and air for combustion therein;

a main fuel injector;

a catalyst section downstream of the preburner section and in a flow stream including fuel from the main fuel injector and air and products of combustion from the preburner section;

a flow liner encompassing the flow stream between the preburner section and the catalyst section;

a flow controller disposed intermediate the preburner section and the catalyst section for obtaining a substantial uniform flow distribution at an inlet to the catalyst section;

said flow controller including a flow splitter disposed in the flow stream and including first and second elements at least in part defining first and second annular flow areas through the splitter, said first element including a generally radially outwardly directed frustoconical wall in the downstream direction of the flow stream defining with said liner said first annular flow area to substantially eliminate or minimize separation of the flow stream downstream of the flow controller and relative to the liner.

2. A combustor according to Claim 1 wherein said first and second annular flow areas are configured to provide substantially the same mass flow.

3. A combustor according to Claim 1 wherein said flow controller includes generally radially extending vanes circumferentially spaced from one another and angled to the direction of flow.

4. A combustor according to Claim 1 wherein said first and second annular flow areas are configured to provide substantially the same mass flow, said flow controller including generally radially extending vanes circumferentially spaced from one another and angled to the direction of flow to remove flow swirl from the flow stream.

5. A combustor according to Claim 1 wherein said flow controller includes a central disk along a centerline of the flow stream.

6. A combustor according to Claim 5 wherein said first and second elements lie radially spaced from one another and said disk, said first element lying radially outwardly of said second element and said disk and a plurality of generally radially extending vanes circumferentially spaced one from the other and angled to the direction of flow.

7. A combustor according to Claim 1 wherein said burner section imparts a swirl to the flow, said flow splitter including generally radially extending vanes

circumferentially spaced one from the other and angled relative to the flow.

8. A combustor for a gas turbine comprising:

a preburner section for receiving fuel and air for combustion therein;

a main fuel injector;

a catalyst section downstream of the preburner section and in a flow stream including fuel from the main fuel injector and air and products of combustion from the preburner section;

a flow liner encompassing the flow stream between the preburner section and the catalyst section;

a flow controller disposed intermediate the preburner section and the catalyst section for obtaining a substantial uniform flow distribution at an inlet to the catalyst section;

the preburner section imparting a swirling pattern to the flow of air and combustion products having a center peak flow velocity along a central region of said liner, said flow controller having a plurality of discrete flow-through areas to preferentially radially distribute the flow to disperse the center peak and produce a more uniform velocity distribution as compared with the velocity distribution of the flow of air and combustion products upstream of the flow controller.

9. A combustor according to Claim 8 wherein said discrete flow-through areas each provide substantially the same mass flow as another of the flow-through areas.

10. A combustor according to Claim 8 wherein said flow controller includes generally radially extending vanes circumferentially spaced from one another and angled to the direction of flow.

11. A combustor according to Claim 10 wherein said discrete flow-through areas each provide substantially in the same mass flow as another of the flow-through areas.

12. A combustor according to Claim 8 wherein said flow controller includes a central disk along a centerline of the flow stream.

13. A combustor according to Claim 12 wherein said flow controller includes generally radially extending vanes circumferentially spaced from one another and angled to the direction of flow, said flow-through areas being radially spaced from one another and said disk.